Naval Research Laboratory
Environmental Quality Sciences

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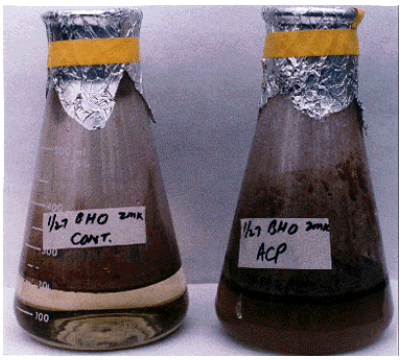
Chemistry Division
U.S. Naval Research Laboratory

Application of Microbial Additives for Shipboard Collection, Holding and Transfer (CHT) Tanks Systems

Shipboard CHT tanks collect wastewater from a variety of sources including heads, galleys and laundries. The solidified grease accumulates on the sides of the tanks, ladders, floats, level sensors and can block drain pipes. The three basic types of additives are used to clean and maintain drain lines and grease traps are chemicals (acid or alkali), purified enzymes (organic catalysts) and bacteria producing specific enzymes and biosurfactants.



This work focused on laboratory testing of 53 commercially available microbial degreasing products for their ability to: 1) consume cooking grease without the generation of hydrogen sulfide, 2) work in freshwater and seawater at 16 °C to 25 °C, 3) work in the presence of microbes in sewage; 4) work in the presence of laundry detergent, and 4) work in the presence of metal such as copper, nickel and zinc in the concentrations found in CHT tanks. The top 4 microbial degreasing products were safe for the ship's force to handle as determined by the Naval Environmental Health Center (NEHC/Norfolk, VA).

Three month microbiological cleaning trials were done in 2 tanks in USS ENTERPRISE (CVN 65) and in USS KITTY HAWK (CV 63). These 4 commercially available microbial degreasing products have been assigned NSN by NSWCCD and have been added to the Uniform Industrial Process Instruction (UIPI) for Sewage System (CHT) Tank Cleaning: Bacteria Culture Cleaners.

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